a molecular weight of 100-100,000. The PTG family polyol includes a polytetramethylene glycol synthesized by the cationic molymerization of tetrahydrofuran and has preferably a molecular weight of 100-100,000. The other polyether polyol includes the ethylene oxide adduct or the propylene oxide adduct of bisphenol A and has preferably a molecular weight of 100-100,000.

The other polyol in the polyol compound (a) includes the (meth)acryl polyol that is a copolymer of a hydroxyl group-containing (meth)acrylic acid ester and the other (meth)acrylic acid ester; the polybutadiene polyol that is a homo- or co-polymer of butadiene having a hydroxyl group at the terminal end; the phenolic polyol having phenol molecules in the molecules; epoxypolyol; and a nonflammable polyol having phosphorus, a halogen atom etc. and has preferably a molecular weight of 100-100,000. These polyols may be used alone or in the combination of two or more of them.

The preferable examples of the above polyols are a C2-C4 alkylene glycol, more preferably ethylene glycol and a poly (C2-C4) alkylene glycol, more preferably tetramethylene glycol. The polyol has preferably a hydroxyl group value of 20-200 mgKOH/g, more preferably of 50-150 mgKOH/g and has preferably a molecular weight of about 300-5,000, more preferably of about 400-2,000.

The polybasic acid anhydride(b-1) having at least two acid anhydride groups has preferably an acid value of 200-1,500 mgKOH/g, more preferably of 500-1,300 mgKOH/g. The acid anhydride includes the anhydride of a C4-C30 aliphatic carboxylic acid having four or more carboxyl groups and an aromatic carboxylic acid having 1-3 benzene rings which has four or more carboxyl groups, where the two or more benzene rings may be condensed or bonded each other directly or through a bridge group. The intermediating bridge group includes oxygen, sulfur, sulfonyl, and a C1-C3 alkylene group. The polybasic acid anhydride includes pyromellitic acid anhydride, benzophenone tetracarboxylic acid dianhydride, biphenyl tetracarboxylic acid dianhydride, biphenylether tetracarboxylic acid dianhydride, diphenyl sulfone tetracarboxylic acid dianhydride, butane tetracarboxylic acid dianhydride, and ethylene glycol bis(anhydrotrimellitate). These may be used alone or in the combination of 2 or more.

The polyisocyanate compound(c) includes preferably a C3-C15 aliphatic or C6-C15 aromatic di- or tri-isocyanate such as 2,4- and/or 2,6-tolylene diisocyanate, 4,4'-diphenylmethane diisocyanate(MDI), polymeric MDI, 1,5-naphthylene diisocyanate, tridine diisocyanate, 1,6-hexamethylene diisocyanate, trimethyl hexamethylene diisocyanate, isophorone diisocyanete, xylilene

diisocyanate(XDI), hydrogenated XDI, hydrogenated MDI, lysine diisocyanate, triphenylmethane triisocyanate, and tris(isocyanatephenyl) thiophosphate. The aliphatic polyisocyanate may be branched and have a substituent such as carboxyl. The aromatic isocyanate may have two or more benzene rings which are condensed or bonded each other directly or through a bridge group, as in the above description of polybasic acid anhydride. These polyisocyanate compounds may be used alone or in the combination of 2 or more. A C5-C9 aliphatic diisocyanate that may have carboxyl as the substituent and a lower alkyl-substituted phenyldiisocyanate are preferable. A phenyldiisocyanate substituted with 1-2 methyl groups is more preferable.

The word "lower" as used in "lower alkyl" for example means C1-C6, preferably C1-C4, more preferably C1-C3 in the present invention.

The ethylenically unsaturated group-containing hydroxy compound (d) is preferably an acrylate group-containing hydroxy compound. The preferable acrylate group-containing hydroxy compound is a C1-C30, preferably C2-C6 alkyl mono- or poly-(meth)acrylate having 1-3 hydroxy groups, and is especially preferably a monohydroxy lower alkylacrylate. The acrylate group-containing hydroxy compound usable in the present invention includes 2-hydroxyethyl (meth)acrylate,